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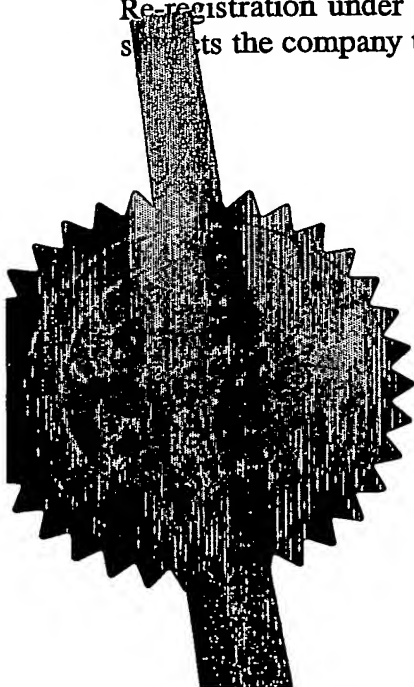
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P01/7700 0.00-0326577.4

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1. Your reference

AT-MS-G34349

2. Patent application number

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0326577.4

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Chemlink Specialities Ltd
Carrington Business Park
Carrington
Urmston
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M31 4ZU

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

08753410001

4. Title of the invention

Carrier system for a composition including one or more hydrolytically unstable components

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Bailey Walsh & Co
5 York Place
Leeds
LS1 2SD

Patents ADP number (if you know it)

224001 ✓

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or

yes

c) any named applicant is a corporate body.

See note (d))

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Continuation sheets of this form

Description

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Claim(s)

Abstract

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

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Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

Date

Barry Walsh

14/11/03

12. Name and daytime telephone number of person to contact in the United Kingdom

A Tomkinson
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Carrier system for a composition including one or more hydrolytically unstable components

This invention relates to a carrier system for a composition including one or more hydrolytically unstable components provided in liquid or gel form.

Although the following description refers almost exclusively to a cleaning composition including hydrolytically unstable components and water soluble sachets containing such a cleaning composition for use in dishwashers, it will be appreciated by persons skilled in the art that the cleaning composition could be used in any application which requires some sort of delivery system or carrier system including hydrolytically unstable components, such as in machine wash compositions, cosmetics, agro chemical adjuvants, bleaching agents, pigments, dyestuffs and/or the like. In addition, the present invention is not restricted to compositions contained in water soluble sachets and can include any water sensitive agent.

In recent years there has been a move in the field of laundry and hard surface cleaning to provide cleaning compositions in pre-defined dosage forms, such as in the form of tablets for use in washing machines. A problem with cleaning compositions in tablet form is that they typically require a user to handle the product in order to place the tablet, for example, in a washing machine. This is undesirable since the tablet can often disintegrate on handling or the active ingredients contained therein may be harmful to the user or act as an irritant.

In order to overcome this problem, the cleaning composition can be contained in a water soluble sachet, thereby removing the requirement for a user to directly contact any active ingredient contained in the sachet. The composition can include a liquid,

gel or powder and once the sachets come into contact with water during the cleaning process, such as in the washing machine, the outer film forming the sachet dissolves or gasses and the cleaning composition is released therefrom.

However, a problem with water soluble sachets is that if the cleaning composition contained therein is to be provided in a gel or liquid form, which is aesthetically preferable to a powder form, has reduced deterioration over time compared to a powder and allows the cleaning composition to work more quickly once released from the sachet (i.e. has improved dispersing characteristics), the gel or liquid will inevitably contain a water based formulation. As such, the gel or liquid contained in the water soluble sachet results in disintegration or gassing of the sachet over a relatively short time period, such that the manufacturer cannot guarantee the quality of the product reaching the end customer.

In an attempt to overcome this problem, formulations have been introduced which replace the water with a polar glycolic solvent. Alternatively, a structured system can also be used wherein the water or water sensitive components are encapsulated in a gel matrix such that the water does not directly come into contact with the water soluble sachet until the sachet dissolves in contact with water used in the cleaning process. Whilst these solutions help to prolong the shelf life of the product prior to use, the problems are still evident if a bleaching component is to be included in the formulation. Any aqueous component of the gel or liquid will react with the bleach to cause disintegration of the water soluble sachet. In addition, the process of encapsulation is time consuming, increases the cost of manufacture and can lead to a reduction in performance due to the need to remove the encapsulating medium before the water sensitive component can be released. Furthermore, products

using encapsulation often require a pre-determined temperature to be reached before disintegration of the encapsulated coating can take place.

A bleaching agent is required for many cleaning compositions in order to remove "bleachable" stains, such as tannin found in tea or red wine, and/or to act as an in situ disinfectant. In laundry powders, bleach is often provided in the form of a persalt, such as Sodium Perborate or Percarbonate, which is often activated in the wash by the addition of a bleach activator, such as Tetra acetyl ethylene diamine. In auto-dishwashing powders, the above components are used or a chlorine releasing agent is used. However, if bleach is added to a gel or liquid composition, the water in the composition leads to activation of the bleach which causes disintegration of the sachet and instability of the gel/liquid.

It is therefore an aim of the present invention to provide a carrier system for a composition including one or more hydrolytically unstable (also referred to as water sensitive hereinafter) components in a gel or liquid form.

According to a first aspect of the present invention there is provided a carrier system for a composition, said composition in the form of a gel and/or liquid and including at least one water sensitive component, characterised in that said carrier system includes an oil component for stabilising said water sensitive component and an emulsifying agent for emulsifying the oil component.

The water sensitive component is substantially homogenised in the non-aqueous carrier component, i.e. oil, to provide an inert stabilising carrier system as a continuous phase for the water sensitive component. Since oil is a component which many

applications, such as cleaning processes are trying to remove, the provision of oil in the carrier system provides an unexpected technical result.

The oil emulsifier is provided with the composition to allow the oil to subsequently be removed from the one or more articles or surfaces being treated by or coming into contact with the composition during use of the composition, such as in a cleaning process. The emulsifier is a surfactant used in the inert continuous phase which does not typically contribute to any particulate suspending action.

Preferably the emulsifier is provided in an amount between 1-10% of the final composition.

Preferably the oil component is mineral oil. The mineral oil acts as a defoamer in the environment of use, such as a dishwasher or washing machine, and also has rinse aid properties. Alternatively, or in addition, the oil component can include any or any combination of a vegetable oil, inert organic liquids, such as fatty acid esters, polyalkylene glycols, other mixtures thereof and/or the like.

In one embodiment the composition (with carrier system) is contained in a water sensitive device, such as a water soluble sachet. The water soluble sachet can be formed from any conventional water sensitive film.

In one embodiment the water sensitive component includes a bleaching agent. Any compound or mixture acting as a bleaching agent can be used in the present invention, such as for example, sodium percarbonate, dichlorocyanurate, bromo-hydantoin, tetracetylene diamine.

Further preferably a bleach activator is provided in the cleaning composition for activating said bleaching agent when mixed with water.

Preferably the composition includes viscosity modifying means, such as a gelling agent, for use in the non-aqueous continuous phase. The viscosity modifying means is required to suspend the active ingredients of the composition therein (i.e. the water sensitive agents). It typically acts to increase the viscosity of the system to a pre-determined level sufficient to provide a substantially homogenous product resistant to separation or sedimentation of particulates.

It is preferred that the viscosity modifying means is provided in an amount between 1-10% of the fluid composition. Furthermore, the viscosity modifying means can include any or any combination of metal soaps, polybutadienes and/or the like.

The composition can also include any or any combination of one or more detergent builders, fragrant components, inert fillers, water softeners, detergents, pigments, dyes, optical brighteners and/or the like. These components can be provided in any required amount, the oil component making up the total amount of the composition to 100%.

According to a second aspect of the present invention there is provided a water soluble sachet containing a carrier system and composition.

According to a further aspect of the present invention there is provided a dosage system for use with a carrier system and composition.

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The advantage of the present invention is that by providing a carrier system in the form of oil, a water sensitive agent contained in the composition is stabilised until such time that the oil is sufficiently distributed in the process in which the composition is being used, such as a cleaning process, to allow activation of the water sensitive agent by water used in the process. The emulsifying agent is used to remove the oil from the one or more articles and/or surfaces being cleaned. Further advantages include an increased shelf life of the product, removal of problems associated with crystallisation of the composition and the removal of the requirement for a user to directly handle active ingredients contained in the composition.

The present invention does not incur the cost of time associated with encapsulation techniques by allowing the dispersion and suspension of the water sensitive components in an inert medium (i.e. oil medium).

An example of the present invention will now be described with reference to the following description.

A cleaning composition in the form of an auto dishwashing gel is provided for use in a dosage system in the form of a water soluble sachet. In accordance with the present invention, the gel also includes water sensitive agents in the form of a bleaching agent and bleaching activator.

A detailed example of a possible cleaning composition according to the present invention is provided below:

White Mineral Oil (carrier)	43%
Sylvagel 5000 (gelling agent)	2%
Emulsogen LP (emulsifier, detergent, wetting agent)	5%
SKS-6HD (builder, chelating agent, saponifying agent)	5%
Sodium Disilicate 3NaG (builder, saponifying agent)	5%

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Tetrasodium Iminodisuccinate (chelating agent, builder)	3%
Peractive AC blue (low temperature bleach activator)	0.4%
Carrubba C9479 (fragrance)	0.1%
Savinase 6D (enzyme for removal of protein stains)	2%
Sodium Percarbonate (bleaching agent)	1%
Sodium chloride (water softener conditioner)	35.5%

In accordance with the method of production of the formulation, the mineral oil and the gelling agent are mixed together in a receptacle at a temperature at or above the melting point of the gelling agent (i.e. 95°C in this example) in order to facilitate the dispersion of the gelling agent in the oil, until the mixture is substantially homogenous. This mixture is then allowed to cool in the receptacle whilst being stirred by stirring means.

Once the mixture is cooled to approx. 70°C, the water softener conditioner and the builders and saponifying agent/chelating agent in the form of sodium Disilicate 3NaG and tetrasodium iminodisuccinate are added to the mixture in the receptacle. The mixture is continued to be stirred until it has cooled to approx. 40°C.

The bleach activator and bleaching agent are then added to the mixture in the receptacle and the mixture is stirred until the temperature of the same is 35°C, after which time the fragrance is added. The mixture is continued to be stirred until the temperature of the same falls below 30°C, after which time the mixture is located in the water soluble sachet for boxing and packing.

Since the mixture is substantially homogenous, the water sensitive components, such as the bleach activator and the bleaching agent are encompassed by the carrier agent in the

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form of the oil, thereby preventing activation of the bleach and gassing of the water soluble sachet.

The temperatures and conditions provided in this example do not limit the invention in any way and are typically dependent on the components used in the system and composition to ensure good thermal degradation of the relevant components.

Thus, the present invention provides a non-aqueous gel which can carry water sensitive components whilst stabilising said components for a pre-determined period of time. The carrying system is a polymeric component which provides good suspension power, is advantageous in terms of cost and improves the performance of the composition.

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